

Claim Amendments

1. (Amended once) A magnetically activated optoelectronic logic gate comprising:
 - a. means for receiving and storing ~~electromagnetic radiation signals of ultraviolet or visible wavelength and~~ magnetic field signals ~~and combinations thereof~~ wherein the means further comprises a photoreactive molecule capable of forming transient species when activated by said electromagnetic radiation signal, the lifetime of said transient species being modified in the presence of a magnetic field; and
 - b. means for selectively accessing said stored signals to deliver said selected signals for signal processing.

Claims 2-5 were cancelled.

6. (canceled)
7. (Currently amended) The optoelectronic logic gate of Claim ~~[[2]]~~ 1 wherein said photoreactive molecule comprises an electron donor, an electron acceptor and a chromophore.
8. (Currently amended) The optoelectronic logic gate of Claim ~~[[2]]~~ 1 wherein said electron donor is a carotene.
9. (Currently amended) The optoelectronic logic gate of Claim ~~[[2]]~~ 1 wherein said electron acceptor is a fullerene.
10. (Currently amended) The optoelectronic logic gate of Claim ~~[[2]]~~ 1 wherein said chromophore is a porphyrin.
11. (Currently amended) The optoelectronic logic gate of Claim ~~[[2]]~~ 1 wherein said photoreactive molecule comprises a carotene, a fullerene and a porphyrin.
12. (Currently amended) The optoelectronic logic gate of Claim ~~[[2]]~~ 1 wherein said transient species is a long-lived charge-separated molecule capable of decaying by radical pair recombination to yield the triplet state.
13. (Previously presented) The optoelectronic logic gate of Claim 8 wherein the lifetime of said transient species is extended by application of a magnetic field.

14. (Currently amended) A means for generating magnetic field signals to the transient species of Claim ~~[[2]]~~ 1 comprises a Helmholtz coil in magnetic contact with said transient species.
15. (Currently amended) The optoelectronic logic gate of Claim ~~[[2]]~~ 1 comprising in addition a means for selectively controlling the time period during which said magnetic signals are generated.
16. (Previously presented) The optoelectronic logic gate of Claim 1 wherein said means for selectively accessing and delivering said stored signals for signal processing comprises:
 - a. means for activating said transient species;
 - b. means for applying a magnetic field to said transient species for a selected period of time;
 - c. means for transmitting an optoelectronic radiation signal through said transient species;
 - d. means for receiving the transmitted optoelectronic radiation signal in the presence of the magnetic field,wherein processing of said transmitted electromagnetic radiation signal comprises comparison of said received signal to a threshold value to provide a Boolean yes/no signal.
17. (Previously presented) The optoelectronic logic gate of Claim 12 wherein said electromagnetic radiation signal is light of a known wavelength and the difference between incident and transmitted signal is the absorbance or per cent transmission of said light.
18. (Previously presented) The optoelectronic logic gate of Claim 12 wherein said electromagnetic radiation signal is electronic and said difference between said incident and transmitted signal is the conductance or capacitance of said electronic signal.
19. (Previously presented) A digital device comprising the magnetically controlled logic gate of Claim 1 wherein processing of said transmitted electromagnetic radiation signal comprises comparison of said signal to a threshold value to provide a Boolean yes/no signal.
20. (Previously presented) A magnetically controlled optoelectronic logic gate of Claim 1 comprising:

- a. a photoreactive molecule capable of forming transient species when activated by an electromagnetic radiation signal, the lifetime of said transient species being altered in the presence of a magnetic field;
- b. means for activating said photoreactive molecule to form said transient species;
- c. means for delivering a magnetic field signal to said transient species for a selected period of time;
- d. generator means for transmitting an optoelectronic signal through said transient species;
- e. monitor means for detecting the transmitted optoelectronic signal in the presence and absence of magnetic field signal; and
- f. output means for delivering signals from said monitor means to a signal processor.

21. (Previously presented) The logic gate of Claim 16 in a computer processor.